

REMARKS/ARGUMENTS

Amendments have been made to claims 1, 13, 14, 23, 30 and 31 to specify that the routing functions of the mobile device are provided using specialized software which configures the processor to route signals from the built-in microphone to the auxiliary I/O port, and from the auxiliary I/O port to the built-in speaker.

Amendments have also been made to claims 7, 26 and 34 to correct a typographical error in the claims, namely to change "wherein electrical connector" to --wherein the electrical connector---.

35 U.S.C. 103(a)

The Office Action was issued following the United States Supreme Court's decision in the case of *KSR Int'l Co. v. Teleflex Inc.*, No. 04-1350 (April 30, 2007). The Examiner, by citing references and asserting a reason for combining elements from the references, appears to have elected to base the rejection upon a teaching, suggestion or motivation to select and combine features from the cited references. The Applicant wishes to point out that the Supreme Court's KSR decision did not reject the use of the "teaching, suggestion or motivation" analysis as part of an obviousness analysis, characterizing the analysis as "a helpful insight" (KSR slip op. at 14-15).

When the Examiner chooses to base a 103(a) rejection upon a teaching, suggestion or motivation analysis, the Examiner must satisfy the requirements of such an analysis. In particular, the Examiner must demonstrate with evidence and reasoned argument that there was a teaching, suggestion or motivation to select and combine features from the cited references.

Because of the apparent ground for rejection, and in the absence of any alternate argument put forward by the Examiner, the only pending ground for rejection appears to be a "teaching, suggestion or motivation" analysis. In the

event that the Examiner chooses to consider a different rationale for rejection, this would be a new ground for rejection not due to any action by the Applicant. The Applicant has a right to be heard on any new ground for rejection.

To establish a *prima facie* case of obviousness under the “teaching, suggestion or motivation” analysis, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Moreover, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). In the event that the cited references fail to disclose or suggest all of the elements recited in the claims, then combining elements from the references would not yield the claimed subject matter, regardless of the extent of any teaching, suggestion or motivation.

It is not sufficient for the Examiner to cite a mosaic of prior art references and stitch together features in the references used for different purposes and in different context to arrive at the claimed features, and support the combination with a mere conclusionary statement that it would be obvious to arrive at the claimed feature to achieve the function of the feature or the claimed invention as a whole. The Examiner must provide a reasoned argument why the combination would be obvious, and why the prior art provides a “teaching, suggestion or motivation” for this combination. The burden of proof lies with the Examiner to establish obviousness under 35 U.S.C. 103(a). Even when a different rationale than “teaching, suggestion or motivation” forms the basis for rejection, the Examiner must provide a reasoned argument why the combination would be obvious without using the Applicant's disclosure as a roadmap for interpreting a mosaic of prior art references to arrive at the claimed invention.

Amendments were made to claims 1, 13, 14, 23, 30 and 31 have been

amended to specify that the routing functions of the mobile device are provided using specialized software which configures the processor to route signals from the built-in microphone to the auxiliary I/O port, and from the auxiliary I/O port to the built-in speaker. Support for this feature can be found at paragraph [0024] of the specification as originally filed. This feature is not found in any of the cited references, nor is there any teaching, suggestion or motivation in any of the prior art references would lead the skilled person to modify the prior art to arrive at this feature.

The Applicant's previous arguments submitted on January 28, 2008 still apply and are reproduced below for the convenience of the Examiner and the Examiner's supervisor.

Summary of Rejections

The Examiner rejects claims 1-2, 7, 12, 21, 23-24, 26 and 28 under 35 U.S.C. 103(a) as being unpatentable over LaMedica Jr. (U.S. Patent No. 7,024,161 A1) and Bakis (U.S. Patent No. 5,822,718).

The Examiner rejects claims 13 and 30 under 35 U.S.C. 103(a) as being unpatentable over LaMedica Jr., Bakis and Konetski et al. (U.S. Patent No. 7,006,637).

The Examiner rejects claims 14-15, 19, 22 and 31-37 under 35 U.S.C. 103(a) as being unpatentable over LaMedica Jr. and Konetski et al.

The Examiner rejects claims 3-4, 9-10 and 15-17 under 35 U.S.C. 103(a) as being unpatentable over LaMedica Jr., Bakis, in further view of Harrel et al. (U.S. Patent App. Pub. No. 2003/0073408)

The Examiner also rejects claims 5-6 and 25 under 35 U.S.C. 103(a) as being unpatentable over Kates (U.S. Patent Pub. No. 2002/0176584 A1) and Keller (U.S. Patent Pub. No. 2004/037428 A1) in further of Official Notice.

Patentability of the claims

The Applicant respectfully submits that the subject matter defined by the amended claims would have not have been obvious to a person of skill in the art at the time the invention was made in view of the above-noted references for the reasons set forth below. Reconsideration and withdrawal of the rejections under 35 U.S.C. 103(a) is requested for the following reasons.

The claimed invention is directed to a method of testing acoustic devices built into handheld systems such as wireless or mobile handhelds or other devices that have a built-in speaker and/or microphone and an auxiliary input/output device or device port. An example of such a device port is a built-in connection for a headset device. While it is not explicitly stated in the preamble of the claims that the method is a method of testing a built-in speaker and/or microphone of a mobile device, it is inherent in the claimed features in that the speaker and microphone under test are those of the mobile voice-enabled communication device. If a clarifying amendment to the preamble in this regard would result in the allowance of the application, the Applicant would be willing to make such an amendment.

Claims 1 and 23

The Examiner has rejected independent claims 1 and 23 as being unpatentable under 35 U.S.C. 103(a) in view of LaMedica, Jr. and Bakis. This rejection is traversed for the reasons set forth below.

Claim 1 recites a method of testing the built-in microphone of the mobile device. An audio generator generates a microphone test signal (in electric form) which is output to an external speaker which generates an acoustic version of the microphone test signal. The output of the external speaker is picked up by the microphone of the mobile device. The output of the microphone (in electric form) is routed to the auxiliary input/output (I/O) device via the microprocessor of the mobile device where it is output and analyzed on an external test system. The method is typically performed by, among other things, using specialized software on the mobile device which configures the processor to route the output signal from the

built-in microphone to the auxiliary I/O port. Claim 23 is directed to a test system for performing a method in accordance with claim 1 which includes a mobile device having a processor configured (e.g., using the specialized software) to route the output signal from the built-in microphone to the auxiliary I/O port.

The Examiner states that LaMedica, Jr. discloses all of the features of claim 1 and 23 except for the test signal being a microphone audio test signal. The Examiner appears to suggest that the various signal processing steps which are claimed are disclosed in LaMedica, Jr. in terms of other test signals. This position is not supported by LaMedica, Jr.

LaMedica Jr. describes a method of remotely testing wireless devices (such as wireless telephones) and upgrading the software in the wireless devices by accessing the test set instrument and the wireless devices through a wireless network. LaMedica Jr. does not describe, nor suggest any methods of audio or acoustic testing of the built-in microphone or speaker of the wireless devices. The Examiner appear to rely primarily on the fact that LaMedica, Jr. tests a wireless device 114 having a microphone, speaker and auxiliary I/O using an external test set 101, and that the test set 101 includes a microphone and speaker (which are external to the wireless device). From this, the Examiner appears to infer the method of testing the microphone and speaker of the wireless telephone 114. The claimed invention involves various microphone test and output signals (in acoustic audio and electric audio forms) which are processed in a specific manner defined by the claims, with the resultant microphone electric audio output signal routed via the processor to the auxiliary input/output device where it is output and analyzed. While some of the device elements recited in the method of claim 1 appear in LaMedica, Jr., there is no teaching or suggestion to use them in the manner claimed.

The only description of how the microphone 108 and speaker 112 of the test set 101 are used appears in column 5, lines 27-35, where it is stated that the microphone and speaker may be used "for testing of audio wireless features, such as voice activation features". This suggests the microphone and speaker are used in

testing relating to the proper operation of a feature of the wireless telephone which may use inputs of the microphone or outputs to the speaker (such as voice activation features). This does not suggest testing relating to the proper operation of the built-in microphone or speaker themselves. LaMedica, Jr. is more concerned with other features of the external test set 101 as described in the Abstract, i.e., the use of a video capturing device (camera 110) and a controller that captures the display of the wireless telephone and transmits this over the wireless network for analysis.

Nowhere does LaMedica, Jr. suggest audio testing which involves the testing for the proper operation of the built-in microphone and/or speaker themselves. Moreover, LaMedica, Jr. does not describe, nor suggest routing the microphone electric output signal from the built-in microphone to the auxiliary I/O port via the processor so that the microphone output signal may be output to the test set 101 as required by claims 1 and 23. In fact, LaMedica, Jr. teaches away from this possibility. At column 4, lines 16 to 24, LaMedica, Jr. states limited data is available to the test set 101 from the wireless telephone 114 via the I/O port 115 of the wireless telephone 114:

The controller also provides instructions to the telephone through the port, for some test operations. For example the controller may instruct the telephone to initiate a call to a specified number and/or to access a particular network service feature. Some limited data from the wireless telephone is available to the controller via the port 115. However, not all of the data output by the wireless telephone 114 and the operating characteristics are available to the controller 102 through the I/O port 115.

The Examiner cannot assume that the electric output signal of the microphone is routed to the test set 101 via the port 115, particularly in view of the above statements from LaMedica, Jr. regarding the limited use of the port 115. The claimed step of routing the microphone electric output signal from the built-in microphone to the auxiliary I/O port via the processor is one of the key inventive features of claims 1 and 23, and was not known or performed prior to the

Applicant's invention. To assume that LaMedica, Jr. operates in this manner is to use the Applicant's own disclosure as a roadmap to interpret this reference - which is improper. Moreover, any acoustic audio output of the speaker 112 of the test set 101 in LaMedica, Jr. need not be generated by an electric audio signal produced on an audio generator external to the wireless telephone as required by the claims 1 and 23. For example, acoustic audio output of the speaker 112 may be based on data transmitted from to the test set 101 over the wireless network. Again, the Examiner is using the Applicant's own disclosure to construe the drawings of LaMedica, Jr. which is not permitted.

Thus, LaMedica, Jr. does not describe all of the features of claim 1 and 23 except for the test signal being a microphone audio test signal, and in fact, teaches away from such features. While the Examiner infers many of the claimed features from the drawings, this is not supported by the scant description of LaMedica, Jr. and its teachings to the contrary (i.e., testing the proper operation of voice features not acoustic device components such as the built-in speaker and microphone). Contrary to the inference that the Examiner has made from the drawings, the skilled person reading LaMedica, Jr. would assume that prior art solutions (such as that described in the background of the present invention) would be used to test the built-in speaker and microphone if this were necessary. Given that LaMedica Jr. does not describe the acoustic testing of the built-in speaker and microphone in any way, it is only with impermissible hindsight based on the Applicant's own disclosure that the claimed method of using the auxiliary input/output device during testing can be inferred.

The Examiner relies on Bakis as teaching a microphone audio test signal. No other reliance on Bakis made by the Examiner. Bakis is directed to testing standalone microphones and is unrelated to testing the built-in microphone of a mobile device. In particular, Bakis does not describe or suggest routing the microphone output signal from the built-in microphone to the auxiliary I/O port via the processor and so fails to overcome the deficiencies of the teachings of LaMedica Jr.

Moreover, the skilled person would not combine LaMedica Jr. with Bakis. This type of testing is normally performed by an acoustic microphone manufacturer and using a wide variety of methods. The method suggested in Bakis is not applicable to testing an acoustic microphone assembled and being part of a device such a handheld or telephone. Thus, Bakis describes a solution for a different problem that is not applicable to the claimed invention. In particular, Bakis suggests connecting the microphone to the sound card which cannot be performed if the microphone is a part of a handheld device. Thus, Bakis teaches away from the testing of microphones and speakers which are assembled into handheld devices that does not permit the required direct electrical connection. The claimed invention solves the connection problem by using specialized software and (re)routing the electrical signals inside the mobile device.

In view of the above, it is submitted that the Examiner has failed to establish a *prima facie* case of obviousness in relation to independent claims 1 and 23 as LaMedica Jr. with Bakis fails to describe, teach or suggest each and every feature of the claims. Moreover, there is no reason to even combine the references. Claims 2-7, 9, 10, 12, 13 and 24-26 and 28-30 depend directly or indirectly from independent claims 1 or 23, and are considered to be directed to patentable subject matter for at least the same reasons given for the base independent claims from which they depend. Withdrawal of the rejections under 35 U.S.C. 103(a) is requested.

Claims 14 and 31

The Examiner has rejected independent claims 14 and 31 as being unpatentable under 35 U.S.C. 103(a) in view of LaMedica, Jr. and Konetski et al. This rejection is respectfully traversed for the reasons set forth below.

Claim 14 recites a method of testing the built-in speaker of the mobile device. An audio generator generates a speaker test signal which is input (in electric form) to the mobile device via the auxiliary I/O device. The input is routed by the microprocessor of the mobile device to its built-in speaker which generates an

acoustic version of the speaker test signal in electric form. The output of the speaker is picked up by an external microphone which outputs the signal in electric form to an external test system where it is analyzed. The method is typically performed by, among other things, using specialized software on the mobile device which configures the processor to receive the test signal from the auxiliary I/O port and route it to the built-in speaker. Claim 31 is directed to a test system for performing a method in accordance with claim 14 which includes a mobile device having a processor configured (e.g., using the specialized software) to receive the test signal from the auxiliary I/O port and route it to the built-in speaker.

The Examiner states that LaMedica, Jr. describes all of the features of claims 14 and 31 except for the test signal being a speaker test audio signal. Rather than outputting the microphone electric audio output signal as in claims 1 and 23, in claims 14 and 31 a speaker electric audio test signal is input via the auxiliary I/O device of the mobile device, and then routed via the processor to the built-in speaker for output. Again, while at least some of the device elements recited in the method of claim 14 and system of claim 31 appear in LaMedica, Jr., there is no disclosure nor teaching or suggestion to use them in the manner claimed.

Any acoustic audio signal produced on the wireless telephone 114 as a test signal (a speaker test signal is not described in LaMedica, Jr. as acknowledged by the Examiner), need not be transmitted to the wireless telephone 114 as an electric audio signal via the port 115, nor does it need to be produced via an audio generator external to the mobile voice-enabled communications device. For example, it could be transmitted as a WAV file or other data file via the port 115, and could be received on the test set 101 via the wireless network rather than generated by the test set 101 (no audio generator is described in LaMedica Jr.). In fact, LaMedica, Jr. describes the test set 101 receiving control information and test instructions from a central station and so teaches away from local generation of test data, and in particular an electric audio signal. Again, it is only with impermissible hindsight based on the Applicant's own disclosure that the Examiner's interpretation of LaMedica, Jr can be inferred.

In terms of Konetski et al., he describes a speaker with a self-diagnosis circuit which uses a speaker test signal. While speaker test signals and output signals using the self-diagnostic circuit are described at column 5 and elsewhere, Konetski et al. does not describe the use of speaker test audio signals (in acoustic and electric forms) in the manner claimed, nor does Konetski et al. cure the other deficiencies of LaMedica, Jr. For example, from the Applicant's review of Konetski et al., a speaker electric audio test signal is not input into the self-diagnosis circuit via an auxiliary I/O device, nor does it provide the other steps or features of the claims which result from this difference.

Moreover, a speaker with a self-diagnosis circuit is not equivalent to a mobile communication device adapted to perform a test of a built-in speaker as in claims 14 and 31. In contrast, Konetski et al. suggests using a self diagnostic circuit for the testing of stand alone speaker systems such as home theatre speaker systems. Thus, Konetski et al. is unrelated to the problem of the present application and LaMedica Jr. and so the skilled person would not combine Konetski et al. with LaMedica Jr.

In view of the above, it is submitted that the Examiner has failed to establish a *prima facie* case of obviousness in relation to independent claims 14 and 31 as LaMedica Jr. with Konetski et al. fails to describe, or teach or suggest each and every feature of the claims. Moreover, there is no reason to even combine the references. Claims 15-19, 21, 22 and 24-26 and 32-34, 36, and 37 depend directly or indirectly from independent claims 14 or 31, and are considered to be directed to patentable subject matter for at least the same reasons given for the base independent claims from which they depend. Withdrawal of the rejections under 35 U.S.C. 103(a) is requested.

The Applicant in prior responses has already commented on the differences over the claimed invention and Harrel et al., Kerrel et al. and Kates et al. applied by the Examiner to various dependent claims. As the independent claims are believed to be non-obvious for the reasons set forth above, no further comment on these references is believed to be necessary.

Favourable reconsideration and allowance of the application are respectfully requested. If a telephone call would advance the application, please contact the undersigned.

Respectfully submitted,

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Date: March 28, 2008

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